Abstract

A system and method that continuously extracts traffic load and speed on roads within the coverage area of a cellular network. The data is extracted directly from communications in a cellular network without using any external sensors. The method enables correlating a car to a road it travels on and determining its speed by using only the partial data that arrives to the cellular switch.

The method consists of the following stages:

- A learn phase, which can include a vehicle(s) with a location device (say GPS system) travels across the covered routes within a designated area and collects the cellular data (cell handover sequences and signal strength reports) and location data in parallel. The accumulated data is then analyzed and processed to create the reference database.
- An operational stage in which communications on the cellular network control channel are monitored continuously, and matched against the reference database in order to locate their route and speed. The route and speed data is used in order to create a traffic status map within the designated area and alarm in real time on traffic incidents.

The data analysis and data base structure are done in a manner that will enable the following:

- Very fast, high reliability initial identification of the vehicle's route in the operational stage, based on handovers' cell ID only.
- Very fast , high reliability follow up forward and backwards of the vehicle's route in the operational stage.
- Real time, high reliability Incident detection.